

**TENTATIVE
STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

**CLEANUP AND ABATEMENT ORDER NO. R4-2010-00XX
REQUIRING**

SHELL OIL PRODUCTS US

**TO CLEANUP AND ABATE WASTE
DISCHARGED TO WATERS OF THE STATE
(PURSUANT TO CALIFORNIA WATER CODE SECTION 13304¹)
AT THE FORMER KAST PROPERTY TANK FARM,
CARSON, CALIFORNIA**

(FILE NO. 97-XXX)

Cleanup and Abatement Order No. R4-2010-00XX requires Shell Oil Products US to assess, monitor, and cleanup and abate the effects of petroleum hydrocarbon compounds and other contaminants of concern discharged to soil and groundwater at their former Kast Property Tank Farm facility located southeast of the intersection of Marbella Avenue and East 244th Street, in Carson, California.

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) herein finds:

BACKGROUND

1. **Discharger:** Shell Oil Products US (hereinafter, the “Discharger”) is a Responsible Party (RP) due to its: (a) ownership of the former Kast Property Tank Farm (hereinafter, the “Site”), and (b) former operation of a petroleum hydrocarbon tank farm at the Site. The Discharger has caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and has created a condition of pollution or nuisance.
2. **Location:** The Site is located southeast of the intersection of Marbella Avenue and East 244th Street in the City of Carson, California. The Site occupies approximately 50 acres of land and is bordered by the Los Angeles County Metropolitan Transportation Authority railroad right-of-way on the north, Lomita Boulevard on the south, Marbella Avenue on the west, and Panama Avenue on the east (Figure 1). The Site was previously owned by the Discharger, who operated three oil storage reservoirs from the 1920s to the mid-1960s. The central and southern reservoirs each had a capacity of 750,000 barrels of oil and the northernmost reservoir had a capacity of 2,000,000 barrels of oil. The Site presently consists of the Carousel residential neighborhood and city streets.

¹ 13304 (a): Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts.

3. **Groundwater Basin:** The Site is located on the Torrance Plain of the West Coast Groundwater Basin (Basin), in the southwestern part of the Coastal Plain of Los Angeles County. Beneath the Site, the first encountered groundwater is estimated at 54 feet below ground surface (bgs). The Basin is underlain by a series of deeper aquifers that are used for drinking water production. These aquifers are with increasing depth, the Gaspar aquifer, Gage aquifer, Lynwood aquifer, and Silverado aquifer. As set forth in the *Water Quality Control Plan for the Los Angeles Region (Basin Plan)*, adopted on June 13, 1994, the Regional Board has designated beneficial uses for groundwater (among which include municipal and domestic drinking water supplies) in the Central Basin and has established water quality objectives for the protection of these beneficial uses.
4. As detailed in the findings below, the Discharger's activities at the Site have caused the release of waste resulting in soil, soil vapor, and groundwater contamination and discharges to the waters of the state.

SITE HISTORY

5. **Property Ownership and Leasehold Information:** Based on information submitted to the Regional Board by the Discharger, the Site has the following property ownership and leasehold history:
 - a. According to the Sanborn maps dated 1924 and 1925, the Site was owned and operated by "Shell Company of California (Kast Property)" beginning in approximately 1924 until the mid-1960s. The Site was used as a tank farm, which included three crude oil storage reservoirs, Reservoir Nos. 5, 6 and 7. Reservoir No. 5, the center reservoir, had a capacity of 750,000 barrels of oil and was under lease to General Petroleum Corporation. Reservoir No. 6, the southernmost reservoir, had a capacity of 750,000 barrels of oil; and Reservoir No. 7, the northernmost reservoir, had a capacity of 2,000,000 barrels of oil. According to Sanborn map notations, the reservoirs had concrete-lined earth-slopes with frame roofs on wood posts, surrounded by earth levees averaging 20 feet in height with 7 foot wide walks on top. One oil pump house was depicted on the 1925 Sanborn map within the southern portion of the Site. Since construction, the Site was used as a crude oil storage reservoir.
 - b. In the absence of records of demolition of the former Kast Property Tank Farm, Pacific Soils Engineering prepared a preliminary soils investigation in March 1966 on behalf of Lomita Development Company documenting that the demolition of the tank farm reservoirs left the concrete liners or slabs of the walls and floors of the reservoirs buried in-situ.
 - c. By 1967, the site was developed into one- and two-story single family residential properties by Lomita Development Company. In aerial photographs taken in 1967, the reservoirs were demolished and the Site was redeveloped with single-family residences.
6. **Site Description and Activities:** The Discharger began operations at the Site in 1923 and operations ended in 1964. The Site was owned and operated by the Discharger as a crude oil storage facility. The facility included equipment to pump the oil to the nearby Discharger's refinery for processing from three concrete-lined oil storage reservoirs with a total capacity of 3.5 million barrels. In the mid-1960s, the facility was closed and the Discharger sold the Site to

Lomita Development Company. Subsequently, the Site was redeveloped into the Carousel residential neighborhood, containing 285 single-family homes.

7. **Chemical Usage:** Based on the Phase I Environmental Site Assessment (ESA) conducted by URS Corporation in 2008, the Site was used for the storage of crude oil in all three reservoirs on the property from at least 1924 to 1966. Subsequent records indicate that in the 1960s the reservoirs may also have been used for storage of bunker oil. Ongoing investigations detected petroleum hydrocarbon compounds including volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) in the subsurface soil, soil vapor, and groundwater underlying the Site.

EVIDENCE OF CONTAMINATION AND BASIS FOR ORDER

8. **Waste Releases:** The following summarizes assessment activities associated with the Site:

- a. In 2007, an environmental investigation of the former Turco Products Facility (TPF) was conducted in areas directly west of the Site and locations in the northwestern portion of the Site by the Department of Toxic Substance Control (DTSC). The DTSC investigation detected petroleum hydrocarbons, benzene, toluene, and chlorinated solvents in soil and soil vapor. A multi-depth soil vapor survey detected benzene at concentrations up to 150 micrograms per liter ($\mu\text{g/l}$) in soil vapor. The soil vapor samples were collected within the footprints of the former Site reservoirs. During the offsite sampling of the investigation of the former TPF by the DTSC, DTSC also reported concentrations as high as 1,800 $\mu\text{g/l}$ of benzene in groundwater beneath the former TPF site. The reported use of chemicals at the former TPF did not involve petroleum hydrocarbons, and this prompted the DTSC to request the Regional Board to initiate regulatory oversight of the former Site.
- b. The Phase I Report dated August 20, 2009 showed that soil impacts consisted primarily of petroleum hydrocarbons spanning a wide range of carbon chains and including benzene, toluene, ethylbenzene, and xylene.
- I. In June 2009, a subsurface investigation of public streets in the Carousel neighborhood consisting of ten cone penetrometer/rapid optical screening tools (CPT/ROST) was performed. The CPT/ROST logs indicated several locations within the Site had elevated hydrocarbon concentrations. The CPT/ROST logs also showed that the highest apparent impacts occurred at depths of 12 feet bgs, at 40 feet bgs, and at 36 feet bgs.
- II. The analytical data for soil samples collected from direct push soil borings advanced to 25 feet bgs at locations on public city streets across the site (Figure 2) were as follows:
 - i. The highest detected concentration of total petroleum hydrocarbons (TPH) was 22,000 milligrams per kilogram (mg/kg) and when quantified as gasoline (TPHg), diesel (TPHd), motor oil (TPHmo) are 8,800, 22,000, and 21,000 mg/kg , respectively;
 - ii. Benzene, ethylbenzene, toluene, and xylene were detected in concentrations as high as 21,000 micrograms per kilogram ($\mu\text{g/kg}$), 32,000 $\mu\text{g/kg}$, 12,000 $\mu\text{g/kg}$, and 140,000 $\mu\text{g/kg}$, respectively;

- iii. SVOCs were detected in concentrations as high as 29 mg/kg of naphthalene, 38 mg/kg of 1-methylnaphthalene, 63 mg/kg of 2-methylnaphthalene, 12 mg/kg phenanthrene, and 9.0 mg/kg pyrene; and
 - iv. Arsenic and lead were detected in concentrations as high as 53.2 mg/kg and 52.5 mg/kg, respectively.
- III. Soil vapor samples collected from a 5-foot depth across public streets of the Carousel neighborhood indicated elevated benzene and methane (Figures 3 and 4). Benzene was detected at a maximum concentration of 3,800,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), which exceeds the California Human Health Screening Level (CHHSL) value of 36.2 $\mu\text{g}/\text{m}^3$ for benzene shallow soil gas in a residential area. Methane was also detected in concentrations as high as 59.7 % (by volume) that significantly exceed its lower explosive limit (LEL) of 5% (by volume), posing a potential safety hazard.
- c. Between September 2009 and February 2010, residential soil and sub-slab soil vapor sampling was conducted at 41 properties (Figure 5 a – f; Tables 1 and 2) and the results were as follows:
- I. Surface and subsurface soil (0 to 10 feet bgs) detected concentrations of chemicals of concern that significantly exceeded soil screening levels as follows:
 - i. VOCs - benzene (10,000 $\mu\text{g}/\text{kg}$), tetrachloroethylene (PCE) (22,000 $\mu\text{g}/\text{kg}$), 1,2,4-trimethylbenzene (34,000 $\mu\text{g}/\text{kg}$), 1,3,5-trimethylbenzene (14,000 $\mu\text{g}/\text{kg}$);
 - ii. SVOCs - Naphthalene (18 mg/kg), Benzo(a)pyrene (2.9 mg/kg), benzo(a)anthracene (0.1 mg/kg), chrysene (0.27 mg/kg), phenanthrene (0.28 mg/kg), and pyrene (0.19 mg/kg); and
 - iii. Lead was also detected at a maximum concentration of 307 mg/kg.
 - II. The highest detected concentrations of TPHg was 5,000 mg/kg, TPHd was 85,000 mg/kg, and TPHmo was 8,100 mg/kg;
 - III. The residential sub-slab soil vapor sampling from the 41 homes detected benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, p/m-xylenes, toluene, acetone, at a maximum concentration of 4,500 $\mu\text{g}/\text{m}^3$, 2,200 $\mu\text{g}/\text{m}^3$, 1,000 $\mu\text{g}/\text{m}^3$, 1,100 $\mu\text{g}/\text{m}^3$, 5,200 $\mu\text{g}/\text{m}^3$, 700 $\mu\text{g}/\text{m}^3$, 270 $\mu\text{g}/\text{m}^3$, respectively.
- d. Between November 19, 2009 and February 15, 2010, additional step-out soil and soil vapor sampling at the elevated soil vapor sampling locations were conducted in selected locations on public streets.
- I. The highest detected concentrations of TPHg was 9,800 mg/kg, TPHd was 22,000 mg/kg, and TPHmo was 21,100 mg/kg;
 - II. Benzene, ethylbenzene, toluene, and xylene were detected in concentrations as high as 33,000 $\mu\text{g}/\text{kg}$, 42,000 $\mu\text{g}/\text{kg}$, 11,000 $\mu\text{g}/\text{kg}$, and 140,000 $\mu\text{g}/\text{kg}$, respectively;

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- III. SVOCs were detected in concentrations as high as 22 mg/kg of naphthalene, 33 mg/kg of 1-methylnaphthalene, 53 mg/kg of 2-methylnaphthalene, 6.1 mg/kg phenanthrene, and 3.9 mg/kg pyrene; and
- IV. Arsenic and lead were detected in concentrations as high as 28.2 mg/kg and 13.6 mg/kg, respectively.
- e. In March 2010, the installation of six on-site groundwater monitoring wells (Figure 6) were completed and quarterly groundwater monitoring was initiated. Groundwater was encountered at 53 feet bgs. Groundwater samples from five of the six wells contained concentrations of benzene at a maximum concentration of 140 µg/L and trichloroethylene (TCE) at a maximum concentration of 290 µg/L. One of the monitoring wells (MW-3) contains a free product or a light non-aqueous phase liquid (LNAPL) of 3.4 foot thickness.

9. Source Elimination and Remediation Status at the Site

- a. The results of the initial soil and soil vapor investigation indicate the presence of elevated methane and benzene at concentrations exceeding the Lower Explosive Limit (LEL) and the CHHSL for shallow soil gas, at several locations across the Site. On October 15, 2009, the Regional Board directed the Discharger to expeditiously design and implement an interim remedial action.
- b. On May 12, 2010 the Regional Board approved a Soil Vapor Extraction (SVE) pilot testing in order to evaluate the use of this technology as a remedial option for VOCs at the Site.

10. Summary of Findings from Subsurface Investigations

- a. Regional Board staff have reviewed and evaluated numerous technical reports and records pertaining to the release, detection, and distribution of contaminants on the Site and its vicinity. The Discharger has stored, used, and/or released petroleum hydrocarbon compounds, including benzene and methane, at the Site. Elevated levels of TPH and other contaminants have been detected in soil, soil vapor and groundwater beneath the Site.
- b. The sources for the evidence summarized above include, but are not limited to:
 - I. Various technical reports and documents submitted by the Discharger or its representatives to Regional Board staff.
 - II. Site inspections, meetings, letters, electronic mails, and telephone communications between Regional Board staff and the Discharger and/or its representatives.
 - III. Subsurface drainage study for the Site reservoirs submitted by Girardi and Associates, the law firm retained by some of the residents of the Carousel neighborhood.

11. Summary of Current Conditions Requiring Cleanup and Abatement

- a. Based on the Phase I ESA for the Site dated July 14, 2008 and prepared by URS Corporation, the Discharger has not located any documentation of operation or closure activities for the Site. According to the document titled *Preliminary Soils Investigation Report* dated January 7, 1966 prepared by Pacific Soils Engineering, Inc., the bottom concrete slabs that make up the former reservoir were buried in the fill.
- b. There is no consistent trend in the vertical distribution of detected concentrations of petroleum hydrocarbon compounds that can be discerned from soil boring data to date. Although, the majority of the aforementioned highest detected TPH concentrations were obtained from the 2.5-foot depth samples, there were multiple locations where the highest concentrations were in the 5-foot or 10-foot samples. This may be due to the nature of previous development activities at the Site (i.e., the construction and demolition of the former reservoirs and site grading in preparation for development of the residential tract).
- c. On May 11, 2010, Environmental Engineering and Contracting (EEC), consultants hired by Girardi and Associates, conducted exploratory trenching in order to locate and identify the obstructions that have been frequently encountered during the advancement of shallow soil borings at many of the residential homes investigated to date. Regional Board staff observed the encountering of an approximately 8-inch thick concrete slab extending at the trench excavation termination depth of 9 feet and 2 inches. These obstructions are presumed to be remnants of the concrete liners of the former reservoir.
- d. Based on the human health risk screening evaluation of the data for the 41 residential surface and subsurface soil sampling (0 to 10 feet bgs), the cancer risk index exceeded 1 for 33 residential properties. The cancer risk index is estimated as high as 90. In the area where the highest cancer index is documented, SVOCs (i.e. Benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene and chrysene) were the primary chemicals of potential concern (COPCs) contributing to the cancer risk index.

For the Carousel neighborhood investigation, the Regional Board is using the most protective cancer risk screening levels recommended by the State and federal governments, which is one in one million (1×10^{-6}) additional risks. The Regional Board uses the most conservative (health-protective assumptions) risk based screening levels of 1×10^{-6} for the target chemical. This screening level is based on a target risk level at the lower end of the USEPA risk management range of one-in-a-million risk (1×10^{-6}) for cancer risk and a hazard quotient of 1.

- e. Based on the sub-slab soil vapor data collected from the residential properties, the cancer risk index exceeded 1 in 27 of the total 40 residential properties investigated to date. Cancer risk index estimates as high as 550 were also documented. In most cases, benzene was the primary contributor to the soil vapor cancer risk index estimate.
- f. The Office of Environmental Health Hazard Assessment (OEHHA) performed a quantitative risk evaluation of TPH using surface and subsurface (0 to 10 feet bgs) soil TPH fractionation data for the 41 residential properties (Table 3). Based on the risk calculation, OEHHA estimated maximum exposures for a child and compared the resulting exposure estimates of reference dosages with that provided by DTSC interim guidance

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dated June 16, 2009. OEHHA concluded that aromatic hydrocarbons in the C-9 to C-32 range at five properties exceeded their reference values for children (Exhibit 1).

- g. **Soil nuisance and odor concerns:** The Environmental Screening Level (ESL) prepared by the San Francisco Bay Regional Water Quality Control Board, based on calculated odor indexes, set a shallow soil ceiling level for TPHg and TPHd concentrations at 100 mg/kg for residential land-use. The soil TPHg and TPHd data obtained from the Site were detected up to 9,800 mg/kg and 85,000 mg/kg, respectively, which clearly exceed the ESL.
- h. **Pollution of Waters of the State:** The Discharger has caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance. The State Water Resources Control Board's Resolution No. 92-49 set forth the policies and procedures to be used during an investigation or cleanup of a polluted site and defines nuisance and odor concerns as follows: *"Anything which is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property by an entire community or neighborhood, or by any considerable number of persons, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin...is a public nuisance."*
- i. The Discharger, in a letter addressed to the Regional Board dated May 5, 2010 (Exhibit 2), stated that it is considering a variety of potential alternatives that can be applied at specific properties and in the public streets in order to avoid environmental impacts and avoid any significant risks to human health at the Site. The Discharger also indicated that if it becomes necessary for residents to relocate temporarily to perform this work, the Discharger will take appropriate steps to minimize any inconvenience and compensate them for any resulting expenses.

12. Regional Board staff will consider cleanup goals in accordance with the following State Policies:

- a. "Antidegradation Policy" (State Board Resolution No 68-16) which requires attainment of background levels of water quality, or the highest level of water quality that is reasonable in the event that background levels cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of water, and not result in accident of water quality objectives in the *Basin Plan*.
- b. "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304" (State Board Resolution No. 92-49) which sets forth criteria to consider for those cases of pollution wherein restoration of water quality to background levels may not be reasonable.

13. Pursuant to section 13304 of the California Water Code, the Regional Board may seek reimbursement for all reasonable costs to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action.

14. This action is being taken for the protection of the environment and as such is exempt from the provisions of the California Environmental Quality Act (Public Resources Code section 21000 et seq.) in accordance with California Code of Regulations, title 14, section 15308.

THEREFORE, IT IS HEREBY ORDERED, pursuant to California Water Code section 13304, that the Discharger shall cleanup and abate the effects of total petroleum hydrocarbons (TPH) and other TPH-related contaminants of concern discharged to soil and groundwater at the Site in accordance with the following requirements:

1. **Complete Delineation of Contamination:** Completely delineate the extent of soil, soil vapor, and groundwater contamination caused by the release of contaminants of concern including, but not limited to, TPH and other TPH-related contaminants at the Site into the saturated and unsaturated zones. Assessment has been ongoing under Regional Board oversight, but assessment is not yet complete. If ongoing reinterpretation of new data derived from the tasks performed suggests that modification or expansion of the tasks approved by the Regional Board is necessary for complete assessment, you are required to submit a work plan addendum(s).
2. **Conduct Groundwater Monitoring:**
 - a. Continue the existing quarterly groundwater monitoring program, and
 - b. As new wells are installed, they are to be incorporated into the existing groundwater monitoring program.
3. **Conduct Remedial Action:** Initiate a phased cleanup and abatement program with the cleanup of soil, soil vapor, and groundwater contamination and abatement of the effects of petroleum contaminated shallow soils and pollution sources as highest priority.

Shallow soils in this Order are defined as soils found to a nominal depth of 10 feet, where potential exposure for residents and/or construction and utility maintenance workers is considered likely (Ref. Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities – CalEPA 1996).

Specifically, the Discharger shall:

- a. Remediate the shallow soils in the unpaved areas of the Carousel neighborhood residential properties associated with contaminant releases across the footprints of the Site.
- b. Restore the impacted shallow soil and remove the entire reservoir concrete slab buried beneath the unpaved soil and associated sludge. The reservoir concrete slabs are considered part of the primary sources of petroleum hydrocarbon releases into the shallow soil.
- c. Develop and implement a work plan, which includes pilot testing for removal of contaminated shallow soils and reservoir concrete slabs from affected areas, including areas beneath residential houses, if warranted by soil monitoring results. This pilot test work plan shall include impacted areas beneath any existing paved areas and concrete foundations of the homes. The pilot test work plan shall include, but is not limited to, plans for relocation of residents during soil removal activities, plans for management of

excavated soil on-site, and plans to minimize odors and noise during soil removal. The Discharger is required to submit this Pilot Test Work Plan to the Regional Board for review and approval by **September 15, 2010**.

- d. Prepare and implement a full-scale petroleum hydrocarbon impacted shallow soil Remedial Action Plan (RAP) for the Site. The Discharger is required to submit the RAP to the Regional Board for review and approval by **October 30, 2010**.

I. The RAP shall include, but is not limited to:

- i. A detailed plan for remediation of any shallow soil contamination that will not be effectively addressed by the ongoing soil vapor extraction system;
- ii. A contingency plan to address any impacted area beneath any existing paved areas and concrete foundations of the homes;
- iii. A detailed surface containment and soil management plan;
- iv. An evaluation of all available options including proposed selected methods for remediation of shallow soil and soil vapor; and
- v. Continuation of existing soil remediation with soil vapor extraction pilot testing.

II. The RAP, at a minimum, shall apply the criteria stated below to cleanup soil and groundwater contamination, and include proposed cleanup goals

- i. Soil cleanup goals set forth in the Regional Board's *Interim Site Assessment and Cleanup Guidebook*, May 1996, shall be considered. The Discharger shall consider contaminant concentrations, depth to the water table, the nature of the chemicals, soil conditions and texture, and attenuation trends. Human health protection levels set forth in *USEPA Regional Screening Levels (Formerly Preliminary Remediation Goals)* shall be considered. For evaluation of the potential intrusion of subsurface vapors (soil vapor) into buildings and subsequent impact to indoor air quality, California Environmental Protection Agency's *Use of Human Health Screening Levels (CHHSLS) in Evaluation of Contaminated Properties*, dated January 2005, or its latest version, and the Department of Toxic Substances Control (DTSC) *Interim Guidance Evaluating Human Health Risks from Total Petroleum Hydrocarbons (Interim Guidance)*, dated June 16, 2009, shall be considered. Soil vapor sampling requirements are stated in the *DTSC Interim Guidance* and the Regional Board's *Advisory – Active Soil Gas Investigations*, dated January 28, 2003, or its latest version, DTSC's *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*, revised February 7, 2005, or its latest version.

- ii. Groundwater cleanup goals shall not exceed California's Maximum Contaminant Levels or Action Levels for drinking water as established by the State Department of Public Health at a point of compliance to be approved by the Regional Board.
- e. Continue conducting residential surface and subsurface soil and sub-slab soil vapor sampling under the current Regional Board approved work plan dated September 24, 2009. If the ongoing reinterpretation of new assessment data derived from the tasks described in the work plan suggests that modification or expansion of the tasks proposed in RAP is necessary for complete cleanup, then addendums to the September 24, 2009 work plan shall be submitted to the Regional Board by **October 30, 2010**.
- f. If the ongoing groundwater monitoring and investigation warrants, the Discharger shall:
 - I. Install new wells in order to complete the groundwater monitoring well network and to fully delineate the impacted groundwater plume, and
 - II. Prepare a detailed impacted groundwater remedial action plan. The Regional Board will determine the due date of the groundwater RAP at a later time.
- 4. **Involvement of the Public:** The Discharger shall encourage public participation. The Discharger is required to prepare and submit for review a Public Participation Plan, with the goal of providing the stakeholders with:
 - a. Information, appropriately targeted to the literacy and translational needs of the community, about contamination investigation and remedial activities; and
 - b. Periodic, meaningful opportunities to comment upon and to influence investigation and cleanup activities.

Public participation activities shall coincide with key decision making points throughout the process as specified or as directed by the Executive Officer of the Regional Board.
- 5. **Time Schedule:** The Discharger shall submit all required technical work plans and reports by the deadlines stated in this Order, which are summarized in Table 4. As field activities at this Site are in progress, additional technical documents may be required and/or new or revised deadlines for the technical documents may be issued; therefore, Table 4 may be updated as necessary.
- 6. The Regional Board's authorized representative(s) shall be allowed:
 - a. Entry upon premises where a regulated facility or activity is located, conducted, or where records are stored, under the conditions of this Order;
 - b. Access to copy any records that are stored under the conditions of this Order;
 - c. Access to inspect any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

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- d. The right to photograph, sample, and monitor the Site for the purpose of ensuring compliance with this Order, or as otherwise authorized by the California Water Code.
7. **Contractor/Consultant Qualification:** A California licensed professional civil engineer or geologist, or a certified engineering geologist or hydrogeologist shall conduct or direct the subsurface investigation and cleanup program. All technical documents shall be signed by and stamped with the seal of the above-mentioned qualified professionals.
8. This Order is not intended to permit or allow the Discharger to cease any work required by any other Order issued by this Regional Board, nor shall it be used as a reason to stop or redirect any investigation or cleanup or remediation programs ordered by this Regional Board or any other agency. Furthermore, this Order does not exempt the Discharger from compliance with any other laws, regulations, or ordinances which may be applicable, nor does it legalize these waste treatment and disposal facilities, and it leaves unaffected any further restrictions on those facilities which may be contained in other statutes or required by other agencies.
9. The Discharger shall submit 30-day advance notice to the Regional Board of any planned changes in name, ownership, or control of the facility; and shall provide 30-day advance notice of any planned physical changes to the Site that may affect compliance with this Order. In the event of a change in ownership or operator, the Discharger also shall provide 30-day advance notice, by letter, to the succeeding owner/operator of the existence of this Order, and shall submit a copy of this advance notice to the Regional Board.
10. Abandonment of any groundwater well(s) at the site must be approved by and reported to the Executive Officer at least 14 days in advance. Any groundwater wells removed must be replaced within a reasonable time, at a location approved by the Executive Officer. With written justification, the Executive Officer may approve of the abandonment of groundwater wells without replacement. When a well is removed, all work shall be completed in accordance with California Department of Water Resources Bulletin 74-90, "California Well Standards," Monitoring Well Standards Chapter, Part III, Sections 16-19.
11. The Regional Board, through its Executive Officer or other delegate, may revise this Order as additional information becomes available. Upon request by the Discharger, and for good cause shown, the Executive Officer may defer, delete or extend the date of compliance for any action required of the Discharger under this Order. The authority of the Regional Board, as contained in the California Water Code, to order investigation and cleanup, in addition to that described herein, is in no way limited by this Order.
12. Any person aggrieved by this action of the Regional Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:
http://www.waterboards.ca.gov/public_notices/petitions/water_quality
or will be provided upon request.

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13. Failure to comply with the terms or conditions of this Order may result in imposition of civil liabilities, imposed either administratively by the Regional Board or judicially by the Superior Court in accordance with Sections 13304, 13308, and/or 13350, of the California Water Code, and/or referral to the Attorney General of the State of California.
14. None of the obligations imposed by this Order on the Discharger are intended to constitute a debt, damage claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations are imposed pursuant to the police powers of the State of California intended to protect the public health, safety, welfare, and environment.

Ordered by: _____

Date: _____

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ATTACHMENTS

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Table 4:	Deadlines for Technical Work Plans and Reports	A

EXHIBITS

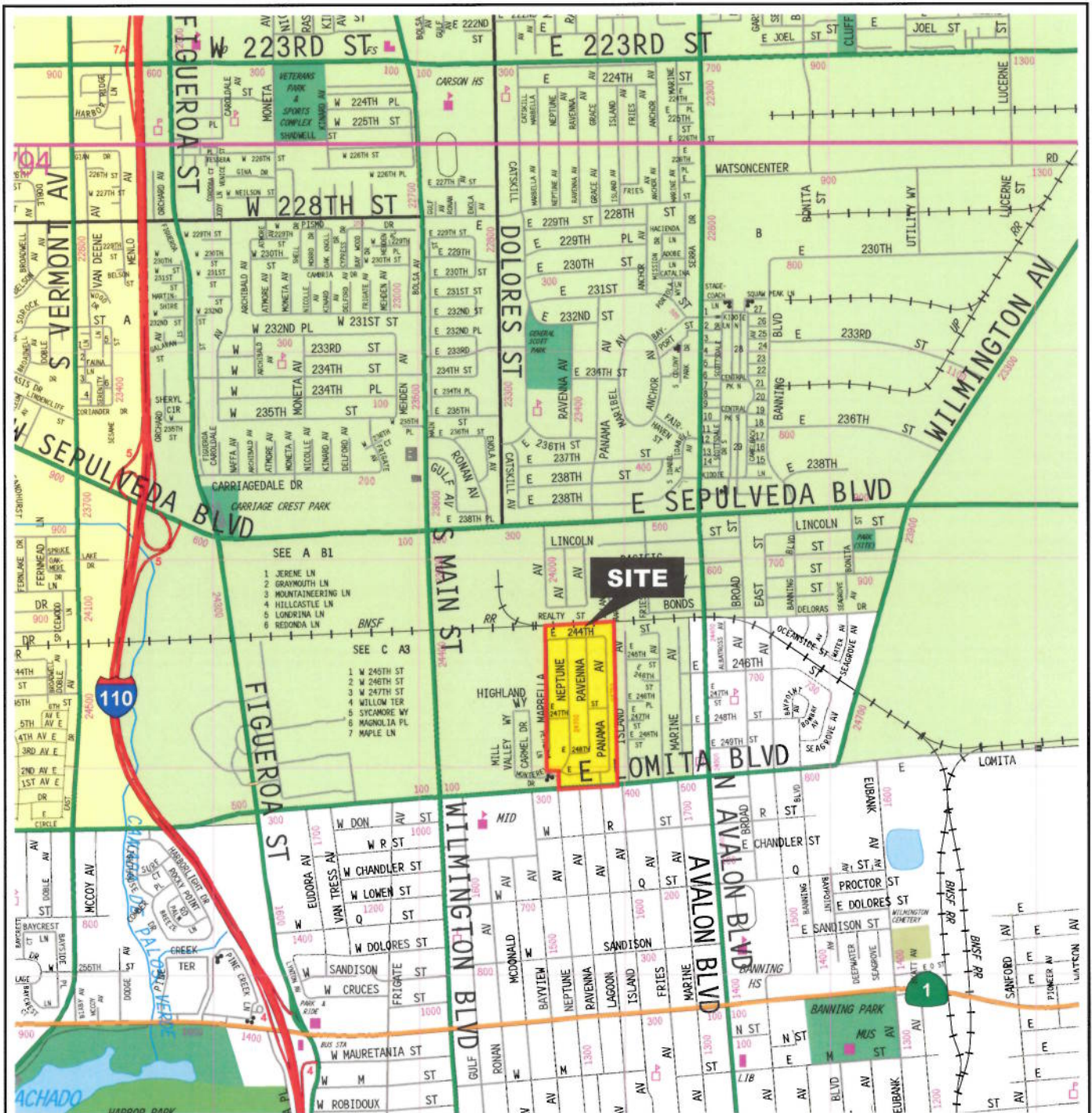
Exhibit 1:	OEHHA's Memorandum dated May 19, 2010	
Exhibit 2:	Shell Oil Company Letter to the Regional Board dated May 5, 2010	T

Note: All Figures and Tables, except Table 4, were taken from technical reports prepared by URS Corporation

I

V

E



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SITE VICINITY MAP

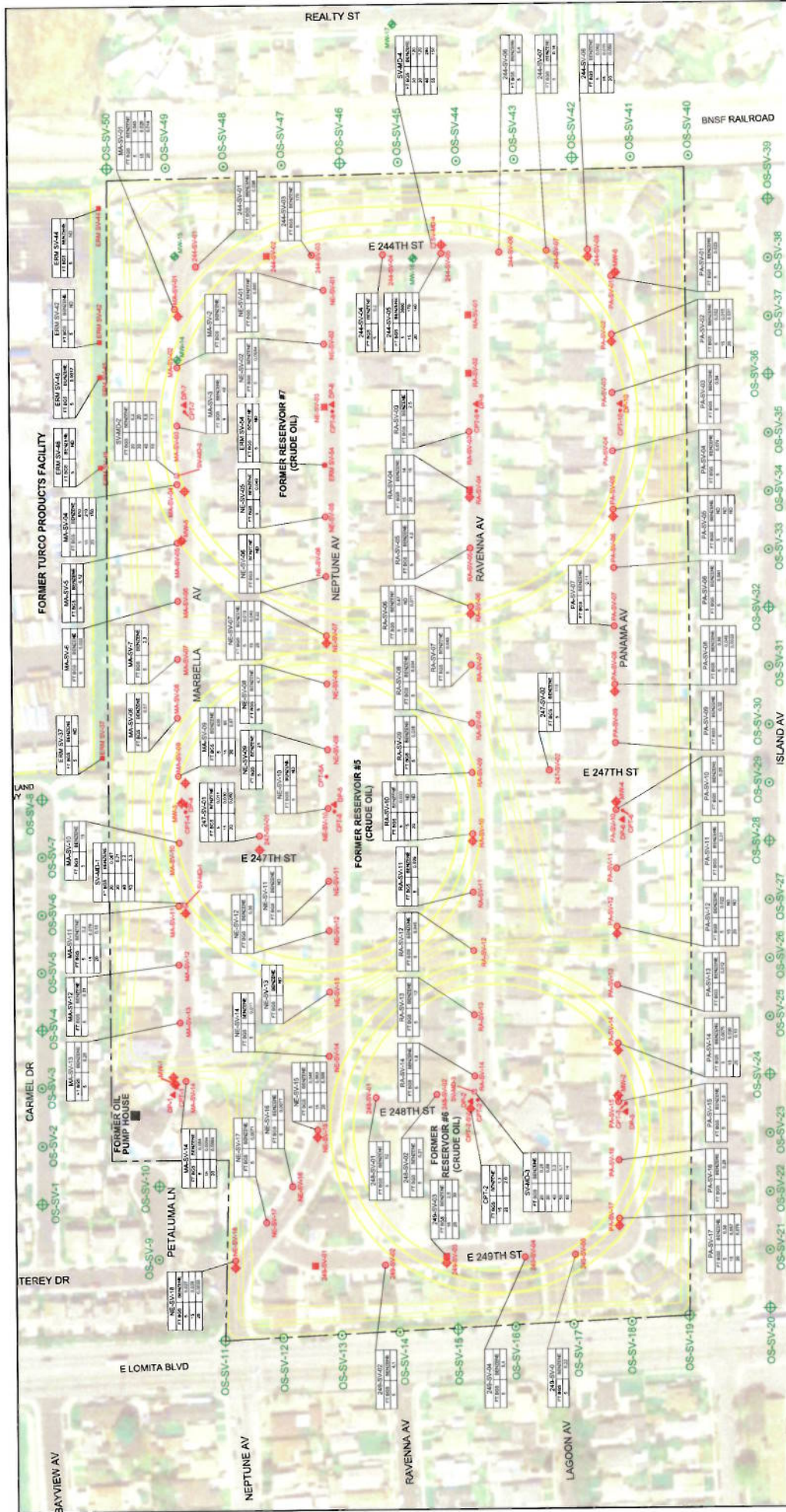
Project No.: 49194314

Date: JUNE 2008

Project: Former KAST Property

Figure 1

URS



URS Corporation

PROPOSED SOIL VAPOR SAMPLING LOCATIONS

Proj. No.: 45194314
Project: FORMER KAST PROPERTY
Date: DECEMBER 2009
Figure: 3

EXPLANATION

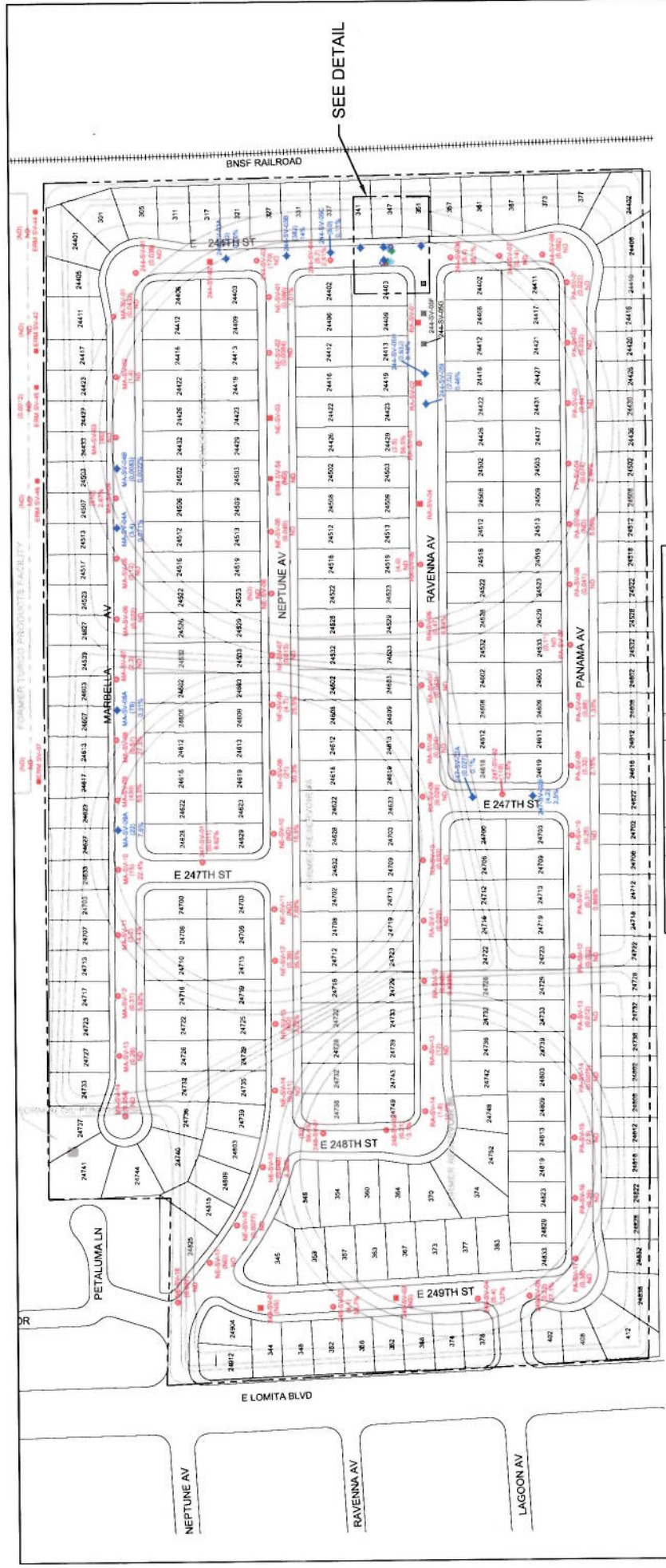
- OS-SV-1 through OS-SV-40: APPROXIMATE LOCATION OF PROPOSED 5 FT BGS SOIL VAPOR SAMPLING LOCATIONS
- OS-SV-1 through OS-SV-40: APPROXIMATE LOCATION OF DIRECT PUSH BORING
- OS-SV-1 through OS-SV-40: APPROXIMATE LOCATION OF 5 FT BGS SOIL VAPOR PROBES
- OS-SV-1 through OS-SV-40: APPROXIMATE LOCATION OF 15 AND 20 FT BGS SOIL VAPOR PROBES
- OS-SV-1 through OS-SV-40: APPROXIMATE LOCATION OF 15 AND 20 FT BGS SOIL VAPOR PROBES (NOT SAMPLING)
- OS-SV-1 through OS-SV-40: APPROXIMATE LOCATION OF MULTIDEEP SOIL VAPOR PROBES
- OS-SV-1 through OS-SV-40: APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
- OS-SV-1 through OS-SV-40: APPROXIMATE LOCATION OF TURCO GROUNDWATER MONITORING WELL

NOT DETECTED ABOVE LABORATORY REPORTING LIMIT

FEET BELOW GROUND SURFACE

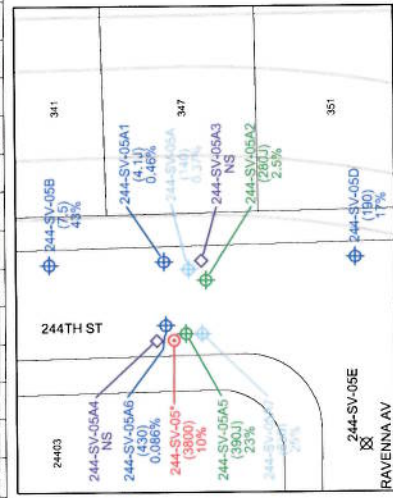
DUP DUPLICATE SAMPLE

PT SAMPLE COLLECTED DURING PURGE TEST

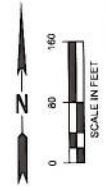


EXPLANATION

- APPROXIMATE PROPERTY LINE
- APPROXIMATE LOCATION OF 5 FT BGS SOIL VAPOR PROBES
- APPROXIMATE LOCATION OF EHM SOIL GAS LOCATION (NOT SAMPLED)
- ⊗ APPROXIMATE LOCATION OF 5 FT BGS SOIL VAPOR PROBES (NOT SAMPLED)
- ⊕ APPROXIMATE LOCATION OF SOIL SAMPLING AND STEP-OUT SOIL VAPOR SAMPLING LOCATION (5 FT BGS)
- ⊖ APPROXIMATE LOCATION OF STEP-OUT SOIL VAPOR SAMPLING LOCATION (10 FT BGS)
- ◇ SUB-SLAB PROBE LOCATION
- ⊗ APPROXIMATE LOCATION OF SOIL SAMPLING (SOIL VAPOR PROBE NOT INSTALLED DUE TO MOISTURE)
- (14) BENZENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L)
- (15) PERCENT METHANE
- NO NOT DETECTED ABOVE LABORATORY REPORTING LIMIT
- NS NOT SAMPLED



DETAIL
SCALE: 1" = 40'



URS Corporation

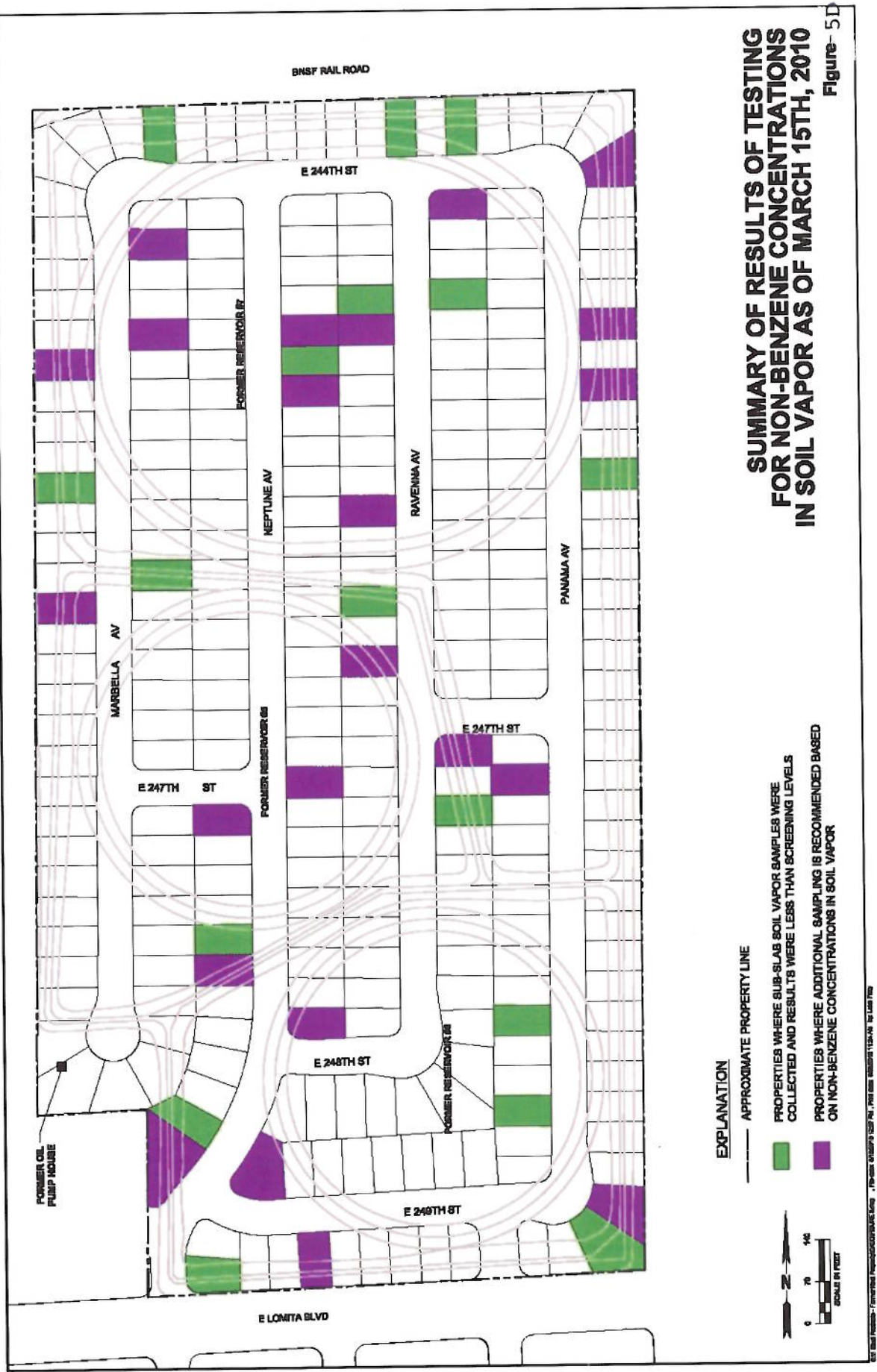
**BENZENE AND METHANE CONCENTRATIONS
IN SOIL VAPOR**

Proj. No.: 49184314	Date: JANUARY 2010
Project: FORMER KAST PROPERTY	Figure: 4

C:\1 Steel Products - Former Kast Properties\benzene and methane\concentrations in soil vapor.dwg Plot Date: 1/27/2010 3:30 PM Plot Name: 427201013.dwg User: jayla.b.fox







SUMMARY OF RESULTS OF TESTING FOR NON-BENZENE CONCENTRATIONS IN SOIL VAPOR AS OF MARCH 15TH, 2010



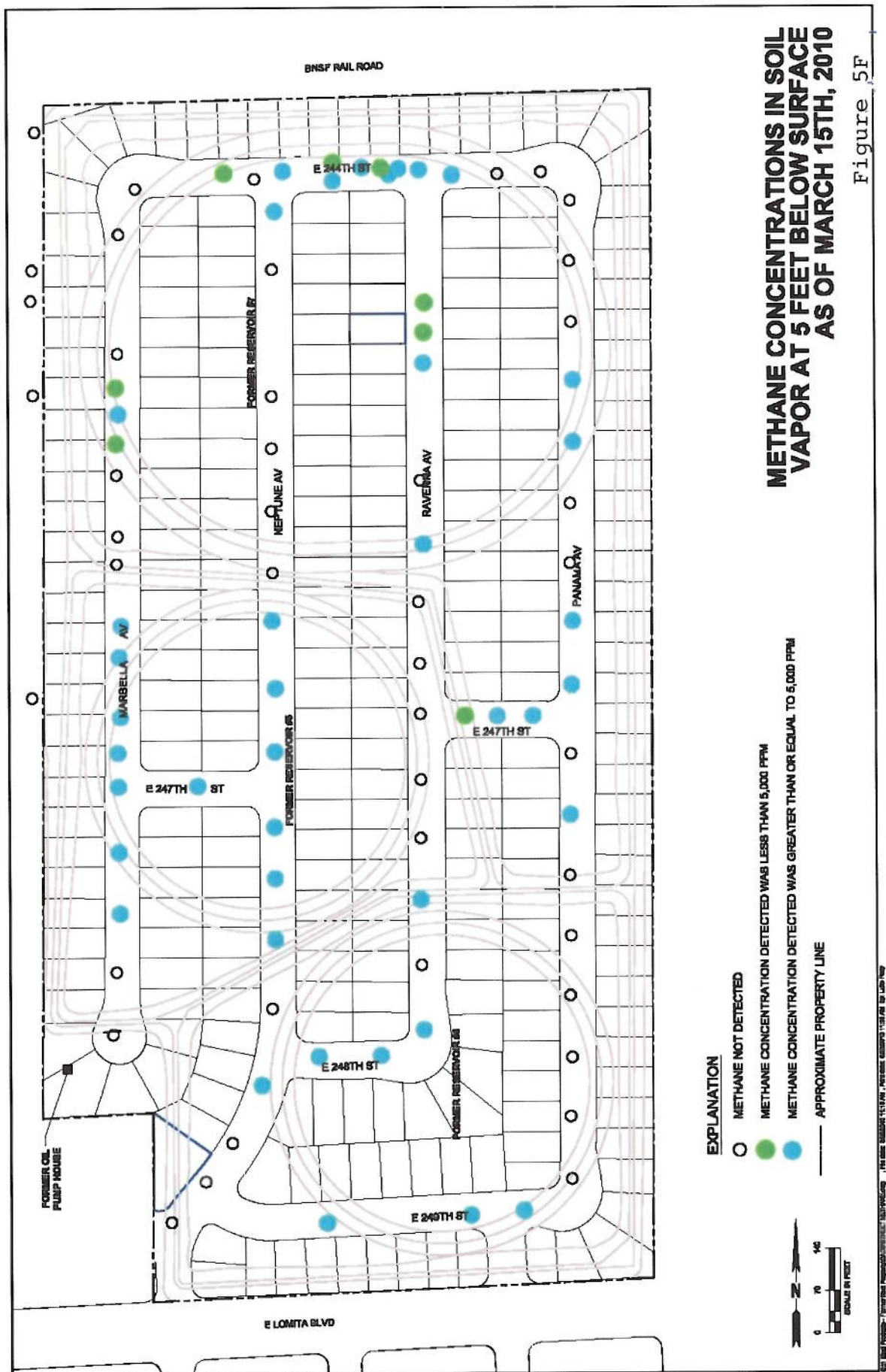


TABLE 1
Summary of Soil Sample Analytical Results- VOCs, SVOCs, and TPH
Addendum to the IRAP- Further Site Characterization Report
Former Kast Property

LOCATION NAME			244SV05A7	244SV05A7	244SV05A7
SAMPLE DATE			2/2/2010	2/2/2010	2/2/2010
SAMPLE DEPTH, ft bgs			2.5	5	10
SAMPLE NAME			244SV05A7-2.5	244SV05A7-5	244SV05A7-10
SAMPLE DELIVERY GROUP (SDG)	Method	Unit	10-02-0133	10-02-0133	10-02-0133
1,2,4-Trimethylbenzene	SW8260B	µg/kg	14,000	9,700	33,000
1,3,5-Trimethylbenzene			3,300	300	12,000
Acetone			< 4000	< 4200	< 11000
Benzene			11,000	9,600	3,900
Chlorobenzene			< 80	< 85	< 220
cis-1,2-Dichloroethene			< 80	< 85	< 220
Cumene (Isopropylbenzene)			4,000	4,500	6,300
Ethylbenzene			12,000	12,000	19,000
Methyl-tert-Butyl Ether			< 160	< 170	< 440
Naphthalene			7,300	7,200	9,800
n-Butylbenzene			2,800	2,400	5,100
p-Isopropyltoluene			2,500	1,800	5,000
Propylbenzene			6,200	6,800	9,600
sec-Butylbenzene			2,100	2,500	3,500
tert-Butylbenzene			94	120	< 220
Toluene			< 80	< 85	< 220
Vinyl Acetate			< 800	< 850	< 2200
Xylenes, Total			7,300	2,500	56,000
1-Methylnaphthalene	SW8270C	mg/kg	19	9.9	13
2-Methylnaphthalene			28	16	21
Fluorene			< 5.0	< 5.0	< 5.0
Naphthalene			11	7.8	10
Phenanthrene			7.4	< 5.0	< 5.0
Pyrene			< 5.0	< 5.0	< 5.0
TPH as Gasoline	M8015	mg/kg	2,500	2,500	5,000
TPH as Motor Oil	M8015	mg/kg	8,100	6,200	5,700
TPH as Diesel	SW8015B	mg/kg	85,000	6,500	6,600

Notes:

Bold text indicates results above laboratory reporting limit.

µg/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

ft bgs = feet below ground surface

TABLE 2
Summary of Soil Vapor Analytical Results - VOCs and Fixed Gases
IRAP Further Site Characterization
Former Kast Property

LOCATION NAME			244-SV-05A5	244-SV-05A6	244-SV-05A7
SAMPLE DATE			2/4/2010	2/4/2010	2/4/2010
SAMPLE DEPTH, FT BGS			2.5	5	10
SAMPLE NAME			244-SV05A5-2.5	244-SV05A6-5	244-SV05A7-10
SAMPLE DELIVERY GROUP (SDG)	Method	Unit	1002129A/B	1002129A/B	1002129A/B
1,2,4-Trimethylbenzene	TO15	UG/M3	18000	< 2800	31000
1,3,5-Trimethylbenzene			< 6200	< 2800	8800
4-Ethyltoluene			17000	< 2800	20000
Benzene			390000 j	430000 j	630000
Cumene (Isopropylbenzene)			7600	8200	14000
Cyclohexane			1800000 j	470000 j	2700000 E
Ethylbenzene			50000	44000	85000
Heptane			1000000 j	< 2400	120000
Hexane			1900000 j	3300 j	250000
Naphthalene			590 J b	760 J b	1300 J b
o-Xylene			20000	< 2500	< 4900
p/m-Xylene			110000	< 2500	120000
Propylbenzene			8400	9300	15000
Toluene			33000	< 2200	< 4200
Carbon Dioxide	D1946	%	5.2	0.89	11
Methane			23	0.086	25
Oxygen			4.5	20	7.3

Notes:

Bold text indicates results above laboratory reporting limit.

µg/m³ = micrograms per cubic meter

% = percent

B = Compound detected in associated laboratory method blank (laboratory qualified)

J = Estimated value (laboratory qualified)

b = Compound detected in associated laboratory method blank (qualified during validation)

j = Estimated value (qualified during validation as the result is possibly biased high)

E = Estimated value. Result exceeded instrument calibration range during analysis

FT BGS = Feet below ground surface

Table 3

**Maximum Concentrations of Aliphatic and Aromatic Hydrocarbons by Hydrocarbon Fractionation
at Individual Properties**

Street Name	House No	Units	Aliphatics (C5 - C8)	Aromatics (C6 - C8)	Aliphatics (C9 - C18)	Aromatics (C9 - C16)	Aliphatics (C19 - C32)	Aromatics (C17 - C32)
244TH ST	351	MG/KG	ND	ND	ND	ND	46	26
244TH ST	361	MG/KG	ND	ND	ND	ND	30	29
249TH ST	345	MG/KG	0.84	ND	140	300	220	240
249TH ST	352	MG/KG	ND	ND	ND	17	48	59
249TH ST	412	MG/KG	ND	0.014	ND	39	80	71
MARBELLA AVE	24412	MG/KG	2300	2	4100	2400	3100	4400
MARBELLA AVE	24426	MG/KG	2.2	0.1	220	240	340	210
MARBELLA AVE	24433	MG/KG	ND	ND	1300	6800	7200	6000
MARBELLA AVE	24517	MG/KG	ND	ND	ND	15	12	27
MARBELLA AVE	24532	MG/KG	350	54	1000	1200	1900	1600
MARBELLA AVE	24603	MG/KG	2	0.058	980	2400	1300	2000
NEPTUNE AVE	24422	MG/KG	1.4	ND	79	170	190	180
NEPTUNE AVE	24426	MG/KG	ND	ND	37	63	99	92
NEPTUNE AVE	24502	MG/KG	0.64	ND	32	72	94	110
NEPTUNE AVE	24632	MG/KG	ND	ND	51	220	300	420
NEPTUNE AVE	24703	MG/KG	68	2.5	1100	2500	2000	2300
NEPTUNE AVE	24725	MG/KG	ND	ND	ND	ND	ND	ND
NEPTUNE AVE	24729	MG/KG	ND	ND	ND	ND	37	35
NEPTUNE AVE	24738	MG/KG	710	130	2100	2000	1900	1300
NEPTUNE AVE	24815	MG/KG	ND	ND	ND	ND	100	54
NEPTUNE AVE	24825	MG/KG	ND	ND	ND	22	84	160
NEPTUNE AVE	24912	MG/KG	ND	ND	ND	ND	12	10
PANAMA AVE	24406	MG/KG	ND	ND	ND	56	260	250
PANAMA AVE	24430	MG/KG	ND	ND	ND	ND	ND	ND
PANAMA AVE	24502	MG/KG	ND	ND	ND	ND	ND	ND
PANAMA AVE	24518	MG/KG	ND	ND	17	48	110	130
PANAMA AVE	24709	MG/KG	2.8	1.1	1100	6100	5100	7200
PANAMA AVE	24739	MG/KG	5.9	0.25	14	240	96	250
PANAMA AVE	24809	MG/KG	53	3.8	220	520	440	570
PANAMA AVE	24823	MG/KG	210	ND	610	540	560	1000
PANAMA AVE	24838	MG/KG	ND	ND	ND	22	96	130
RAVENNA AVE	24402	MG/KG	680	60	680	630	920	730
RAVENNA AVE	24416	MG/KG	3.8	0.32	640	1500	2000	1900
RAVENNA AVE	24419	MG/KG	1.2	0.07	280	510	790	890
RAVENNA AVE	24423	MG/KG	780	23	820	830	700	600
RAVENNA AVE	24523	MG/KG	2.4	0.16	100	250	210	290
RAVENNA AVE	24603	MG/KG	ND	ND	ND	ND	15	ND
RAVENNA AVE	24613	MG/KG	76	ND	500	340	590	760
RAVENNA AVE	24700	MG/KG	ND	ND	15	67	340	410
RAVENNA AVE	24712	MG/KG	1.1	0.013	140	130	240	360

Note: The concentrations shown are the maximum concentration detected at each property.

The maximum concentration of aliphatic or aromatic hydrocarbons in a particular carbon-chain range may not occur in the same sample as the maximum concentrations in a different carbon-chain range.

TABLE 4
DEADLINES FOR TECHNICAL WORK PLANS AND REPORTS

REQUIRED TECHNICAL DOCUMENT		DEADLINE
A	Pilot Test Work Plan for removal of contaminated shallow soils and reservoir concrete slabs from affected areas, including areas beneath residential houses, if warranted by soil monitoring results	September 15, 2010
B	Remedial Action Plan for impacted shallow soil	October 30, 2010
C	Addendums (when applicable) to Regional Board approved September 24, 2009 work plan on residential surface and subsurface soil and sub-slab soil vapor sampling	October 30, 2010

Office of Environmental Health Hazard Assessment



Linda S. Adams
Secretary for Environmental Protection

Joan E. Denton, Ph.D., Director
Headquarters • 1001 I Street • Sacramento, California 95814
Mailing Address: P.O. Box 4010 • Sacramento, California 95812-4010
Oakland Office • Mailing Address: 1515 Clay Street, 16th Floor • Oakland, California 94612



Arnold Schwarzenegger
Governor

MEMORANDUM

TO: Dr. Teklewold Ayalew
Engineering Geologist
Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

FROM: James C. Carlisle, D.V.M., M.Sc.,
Lead Staff Toxicologist
Integrated Risk Assessment Branch

DATE: May 19, 2010

SUBJECT: TPH DATA FOR 41 HOMES AT THE FORMER KAST SITE IN CARSON,
CA (R4-09-17) OEHHHA # 880212-01

Document reviewed

- Memo: "Kast TPH Data for 41 homes" dated April 6, 2010.

Site characterization

- Analytical data for TPH in soils data are supplied for 41 homes. Sample depths are not always stated but those that are provided are either 0.5 or 5 feet.

Hazard Assessment

Based on the data in the memo, I estimated maximum exposures for a child and compared the resulting exposure estimates to DTSC reference dosages (RfDs).

- In the table below, columns 3-8 show the maximum TPH concentrations detected at each property.
- Columns 9-14 show the corresponding TPH ingestion by a 15 kg child ingesting 200 mg soil per day.
- Columns 15-20 show the corresponding hazard quotients for a 15 kg child, obtained by dividing the daily ingestion by the reference dose. Hazard quotients exceeding unity are in bold font.

PANAMA AVE	24823	210	ND	610	540	560	1000	2.8E-3		8.1E-3	7.2E-3	7.5E-3	1.3E-2	7.0E-2	*	8.1E-2	2.4E-1	3.7E-3	4.4E-1
PANAMA AVE	24838	ND	ND	ND	22	96	130				2.9E-4	1.3E-3	1.7E-3	0.0E+0	*	0.0E+0	9.8E-3	6.4E-4	5.8E-2
RAVENNA AVE	24402	680	60	680	630	920	730	9.1E-3	8.0E-4	9.1E-3	8.4E-3	1.2E-2	9.7E-3	2.3E-1	*	9.1E-2	2.8E-1	6.1E-3	3.2E-1
RAVENNA AVE	24416	3.8	0.32	640	1500	2000	1900	5.1E-5	4.3E-6	8.5E-3	2.0E-2	2.7E-2	2.5E-2	1.3E-3	*	8.5E-2	6.7E-1	1.3E-2	8.4E-1
RAVENNA AVE	24419	1.2	0.07	280	510	790	890	1.6E-5	9.3E-7	3.7E-3	6.8E-3	1.1E-2	1.2E-2	4.0E-4	*	3.7E-2	2.3E-1	5.3E-3	4.0E-1
RAVENNA AVE	24423	780	23	820	830	700	600	1.0E-2	3.1E-4	1.1E-2	1.1E-2	9.3E-3	8.0E-3	2.6E-1	*	1.1E-1	3.7E-1	4.7E-3	2.7E-1
RAVENNA AVE	24523	2.4	0.16	100	250	210	290	3.2E-5	2.1E-6	1.3E-3	3.3E-3	2.8E-3	3.9E-3	8.0E-4	*	1.3E-2	1.1E-1	1.4E-3	1.3E-1
RAVENNA AVE	24603	ND	ND	ND	ND	15	ND					2.0E-4		0.0E+0	*	0.0E+0	0.0E+0	1.0E-4	0.0E+0
RAVENNA AVE	24613	76	ND	500	340	590	760	1.0E-3		6.7E-3	4.5E-3	7.9E-3	1.0E-2	2.5E-2	*	6.7E-2	1.5E-1	3.9E-3	3.4E-1
RAVENNA AVE	24700	ND	ND	15	67	340	410			2.0E-4	8.9E-4	4.5E-3	5.5E-3	0.0E+0	*	2.0E-3	3.0E-2	2.3E-3	1.8E-1
RAVENNA AVE	24712	1.1	0.013	140	130	240	360	1.5E-5	1.7E-7	1.9E-3	1.7E-3	3.2E-3	4.8E-3	3.7E-4	*	1.9E-2	5.8E-2	1.6E-3	1.6E-1
RfD								0.04		0.1	0.03	2	0.03		* = No RfD				

- Aromatic hydrocarbons in the C-9 to C-32 range at 24412, 24433, and 24603 Marbella Avenue, 24709 Panama Avenue, and 24703 Panama Neptune exceed their reference values for children (i.e. the hazard quotient is ≥ 1).
- While a hazard quotient ≥ 1 does not indicate that there will be definite toxic effects, it does indicate that the concentration exceeds the level that we can say is definitely safe.

Conclusions

- Aromatic hydrocarbons in the C-9 to C-32 range at five properties exceed their reference values for children (i.e. the hazard quotient is ≥ 1).

If you have any questions, do not hesitate to call or e-mail me at 916-323-2635 or JCarlisle@OEHHA.CA.gov, respectively.

Memo reviewed by:

Ned Butler, PhD
Staff Toxicologist
Integrated Risk Assessment Branch



May 5, 2010

Ms. Tracy Egoscue
Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Shell Oil Company
One Shell Plaza
910 Louisiana Street
Houston, TX 77002
Tel (713) 241 5126
Email: ed.platt@shell.com
Internet <http://www.shell.com>

**Reference: Former Kast Property, Carson, California
Site Cleanup No. 1230; Site ID 2040330**

Dear Ms Egoscue:

As you know, during the past several months, Shell Oil Company employees and contractors have worked tirelessly to investigate and address the environmental issues at the former Kast Property. To date, we have sampled at approximately one-third of the homes in the Carousel neighborhood, and we will continue our work in conjunction with the RWQCB, based upon applicable and appropriate scientific and regulatory standards that are protective of human health and the environment. Like the RWQCB, our goal is to protect the residents of the Carousel neighborhood and address the environmental issues, while minimizing disruption to residents and preserving the integrity of the community.

Although elevated levels of compounds of concern (COCs) have been found beneath the streets and at certain residential properties, based on the data collected so far, there is no imminent risk to residents or the public in the Carousel neighborhood. Also, while Shell's investigation is not yet complete, it does not appear at this time that there is any significant off-site migration of soil impacts or soil vapor impacts from the former Kast Property.

Our approach, which is to develop a coherent conceptual framework for the mitigation and remediation of the Carousel neighborhood, is consistent with the RWQCB's guidelines providing for a principled, phased approach to investigating and remediating environmental impacts. Specifically, this approach follows the guidance set out in the State Water Resources Control Board's Resolution 92-49. In accordance with these guidelines, it includes "an evaluation of cleanup alternatives that are feasible at the site" and consistent with the maximum benefit to the people of the State. Because the soil and groundwater assessment is ongoing, a full evaluation of cleanup alternatives is premature at this time.

Nevertheless, we are considering a variety of potential alternatives that can be applied at specific properties and in the public streets in order to address environmental impacts and avoid any significant risk to human health in the Carousel neighborhood. For example, Shell has submitted a work plan for the soil vapor extraction pilot test. While evaluating alternatives, we place a priority on keeping the community intact and minimizing any disruption to residents of the Carousel community. If it becomes necessary for residents to relocate temporarily to perform this work, Shell will take appropriate steps to minimize any inconvenience and compensate them for any resulting expenses. We are also sensitive to the residents' concerns about their property values and are open to a dialogue with the RWQCB regarding these issues.

In addition, Shell is continuing to monitor the groundwater to ensure that there are no significant impacts emanating from the former Kast Property. In this regard, it is essential that groundwater conditions both up-gradient and down-gradient be evaluated. To date, our investigation suggests that groundwater up-gradient of the former Kast property is significantly contaminated. One potential source of this contamination appears to be the former Fletcher Oil Refinery, which we understand the County Sanitation District is remediating.

We look forward to further dialogue with the RWQCB regarding the draft Feasibility Study outline, recently submitted, as well as the Site Conceptual Model, to be submitted later this month. The Site Conceptual Model will provide: (1) an overview of our investigation efforts to date; (2) additional information regarding potential on and off-site sources for the COCs; and (3) a review of the available options for remediation of the former Kast property.

We appreciate your leadership on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "William E. Platt", with a stylized flourish extending to the right.

William E. Platt
Manager, Environmental Claims
Shell Oil Company